Data Management Plan
Dark Matter in CCDs (DAMIC)

June 2, 2016

Experiment description

The DAMIC experiment is a Direct Search for Dark Matter using Charge Coupled Devices (CCDs). The detector used for this search is an array of CCDs with low readout noise, that enables a low threshold experiment sensitive to low mass dark matter particles. The experiment is operating at SNOLAB since December 2012. New results for the experiment were presented in the UCLA-DM conference in Feb-2016.The DAMIC experiment is planning an upgrade of the detector to increase the active mass. The goal is to achieve an active mass of 100g using CCDs with a mass of 5.7g. The 100g active mass will be achieved with 18 of these new type of detectors. This upgrade is called DAMIC-100.

DOE's role:

The Department of Energy, Office of Science, Office of High Energy Physics funded early stage R&D and design work and construction of the detector at Fermilab installed in 2012. The initial funding was provided through a PECASE award to Juan Estrada. Juan Estrada is a scientist at FNAL, and is currently the spokesperson for the collaboration. DOE provided the majority of funding for the initial deployment at SNOLAB and continues to provide significant support for operations. The partner institutions have provided about 60% of the resources for the upgrades done to the detector since its installation in 2012.

Partnerships/Collaborations:

There are 10 institutions involved in DAMIC. Snolab is one of those institutions, is the only institution in Canada member of the experiment. Two universities from the US, one National Laboratory and three institutions from outside the US. The experiment has 43 collaborators: 26 physicist, 3 engineers, and 14 graduate and undergraduate students. Two master theses have been completed in this project. Two PhD students working on DAMIC have graduated. The collaborating institutions, and their PIs are:

- Centro Atomico Bariloche, Argentina : Xavier Bertou
- Fermi National Accelerator Laboratory, USA :, Juan Estrada
- LPNH3, IN2P3, France : Antoine Letessier-Selvon.
- SNOLAB, Canada : Ian Lawson
- University of Chicago , USA : Paolo Privitera
- University of Michigan, USA : Dante Amidei
- Universidad Nacional de Asuncion, Paraguay: Jorge Molina
- Universidad Nacional Autonoma de Mexico: Juan, Carlos D'Olivo

- University of Zurich, Switzerland : Ben Kilminster
- UFRJ, Brazil: Joao de Mello Neto

Organization – Agency/Lab level

Fermilab is the lead laboratory for the experiment construction. The DAMIC scientific collaboration is a group of Universities and Laboratories devoted to scientific analysis and operations of the experiment.

Organization – Experiment level

The DAMIC Collaboration is lead by Juan Estrada as its spokesperson. The DAMIC Collaboration Board is responsible for decisions related to scientific strategy, including the data management policy. The board membership currently includes one PI of each collaborating institution. The chair of the Collaboration Board is currently Ben Kilminster of University of Zurich.

Data Policy Managment

The DAMIC Collaboration Board is responsible for any decision regarding the data policy, making data public, and archiving data.

Data Description and Processing

The raw data for the DAMIC experiments consists on the CCD images (in FITS file format), and their corresponding header with all the environmental and telemetry informations for each image. This environmental and telemetry data includes the detector temperature, the length of the exposure, and the operating voltages of the CCD detectors. The processed data is a catalog resulting from the object reconstruction algorithm that runs over the raw data.

Data Products and Releases

The DAMIC Collaboration Board will consider on case-by-case basis the possibility of sharing the raw data, or the processed data with groups outside the collaboration upon request. The Collaboration Board will also consider making part of the data products public.

Plan for Serving Data to the Collaboration and Community

Fermilab hosts servers containing the raw and processed data files for the DAMIC Collaboration. The University of Chicago has a full repository for all the DAMIC data. The Collaboration board will consider which of the DAMIC data products will be made available.

Plan for Making Data Used in Publications Available

If possible, all DAMIC publications are posted on the arXiv.org website when they are submitted to the journal. All data points shown in the published graph will be available in a machine-readable form in ancillary files in the arXiv.org entry for that publication. If it is not possible to upload the manuscript to arXiv.org, then arrangements will be made with the publisher to post these data as supplemental data on the journal website.

Responsiveness to SC Statement on Digital Data Management

This data management plan fully follows the Office of Science Statement on Digital Data Management.